

REMARKS

Claims 1-7 are pending in the application. In the Final Office Action of October 25, 2002, the Examiner made the following disposition:

- A.) Rejected claim 4 under 35 U.S.C. §103(a) as being unpatentable over *Matsufuji et al.* in view of *Iijima et al.*
- B.) Rejected claims 1 and 5 under 35 U.S.C. §103(a) as being unpatentable over *Matsufuji et al.* in view of *Iijima et al.*, in further view of *Kato et al.* and *Beauchamp*.
- C.) Rejected claims 6 and 7 under 35 U.S.C. §103(a) as being unpatentable over *Yasunami* in view of *Watanabe et al.*, in further view of *Iijima et al.*
- D.) Rejected claims 2 and 3 under 35 U.S.C. §103(a) as being unpatentable over *Taniuchi et al.* in view of *Watanabe et al.*, in further view of *Iijima et al.*

Applicants respectfully traverse the rejections and address the Examiner's disposition as follows:

Applicants' claim 1 has been amended to include the subject matter of claims 2 and 3. Claim 4 has been amended to depend from claim 1 and to include the subject matter of claim 5. Claim 6 has been amended to include the subject matter of claim 7. Accordingly, claims 2, 3, 5, and 7 have been cancelled. Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "**VERSION WITH MARKING TO SHOW CHANGES MADE**".

- A.) Rejection of claim 4 under 35 U.S.C. §103(a) as being unpatentable over *Matsufuji et al.* in view of *Iijima et al.*:

Applicants respectfully disagree with the rejection.

Applicants' independent claim 1, as amended, claims a method of producing a negative electrode using a negative electrode black mix containing a negative electrode material composed of a mixture of a non-carbon material and a carbon material. The method comprises pulverizing and classifying each of the non-carbon material and the carbon material in an inert gas atmosphere. The non-carbon material and the carbon material are mixed in an inert gas atmosphere. The negative electrode black mix is applied on a negative electrode collector and dried in an inert gas atmosphere or a dry air atmosphere. A ratio of an average particle size R_M of the non-carbon material in the negative electrode material to an average particle size R_C of the carbon material in the negative electrode material is in a range of $R_M/R_C \leq 1$.

This is clearly unlike the cited references. As stated above, claim 1 has been amended to include the subject matter of claims 2 and 3. Referring to the Examiner's arguments, Applicants respectfully submit that in order to disclose Applicants' claim 1, as amended, the Examiner would attempt to combine *Matsufuji et al.* in view of *Iijima et al.*, in further view of *Kato et al.* and *Beauchamp*, and in yet further view of *Taniuchi et al.* and *Watanabe et al.*. In other words, based on the Examiner's already presented arguments, it appears that the Examiner would attempt to rely on the combination of SIX references to disclose or suggest Applicants' claim 1, as amended.

The multiplicity of references supports that claim 1 is neither disclosed nor suggested by the six cited references, because even with knowledge of Applicants' claimed method, the Examiner would attempt to rely on not 1 or 2, but 6 references, and pick an choose among the features of those references to come up with the elements of claim 1. But for the knowledge of Applicants' methods, obtained from reading Applicants' application, it is not likely that the Examiner or another skilled in the art, would have thought of picking one part from one reference, one part from another, and still more from the other four references. No one skilled in the art, so far as the patents cited by the Examiner are concerned, thought of practicing the claimed method, as evidenced by the multiplicity of references that are required to make the rejection.

Therefore, Applicants respectfully submit that claim 1, as amended, is allowable over the cited references.

Claim 4 depends directly from claim 1 and is therefore allowable for at least the same reasons that claim 1 is allowable.

Applicants respectfully submit the rejection has been overcome and request that it be withdrawn.

B.) Rejection of claims 1 and 5 under 35 U.S.C. §103(a) as being unpatentable over *Matsufuji et al.* in view of *Iijima et al.*, in further view of *Kato et al.* and *Beauchamp*:
Applicants respectfully disagree with the rejection.

Claim 1, as amended, is allowable over the cited references as discussed above.

Claim 5 has been cancelled.

Applicants respectfully submit that the rejection has been overcome and request that it be withdrawn.

C.) Rejection of claims 6 and 7 under 35 U.S.C. §103(a) as being unpatentable over Yasunami in view of Watanabe et al., in further view of Iijima et al.:

Applicants respectfully disagree with the rejection.

Applicants' independent claim 6 has been amended to include the subject matter of claim 7. Claim 7 has been cancelled.

Claim 6, as amended, claims a method of producing a non-aqueous electrolyte battery, including a positive electrode containing a lithium composite oxide; a negative electrode containing a negative electrode material composed of a mixture of a non-carbon material in or from which lithium is doped or released and a carbon material, the negative electrode being disposed opposite to the positive electrode; and a non-aqueous electrolytic solution used as a non-aqueous electrolyte interposed between the positive electrode and the negative electrode. The method comprises the steps of: winding the negative electrode into a wound body in an inert gas atmosphere or a dry air atmosphere; and pouring the non-aqueous electrolytic solution in the non-aqueous electrolytic battery in an inert gas atmosphere or a dry air atmosphere, wherein a ratio of an average particle size R_M of the non-carbon material in the negative electrode material to an average particle size R_C of the carbon material in the negative electrode material is in a range of $R_M/R_C \leq 1$.

This is clearly unlike *Yasunami* in view of *Watanabe et al.* and further in view of *Iijima et al.* The Examiner attempts to rely on the combination of THREE references to disclose or suggest Applicants' claim 6, as amended. The multiplicity of the references supports that claim 6 is neither disclosed nor suggested by the six cited references, because even with knowledge of Applicants' claimed method, the Examiner would attempt to rely on not 1 or 2, but 3 references, and pick and choose among the features of those references to come up with the elements of claim 6. But for the Applicants' method, obtained from reading Applicants' application, it is not likely that the Examiner or one skilled in the art, would have thought of picking one part from one reference, one part from another, and still more from the other four references. No one skilled in the art, so far as the patents cited by the Examiner are concerned, thought of practicing the claimed method, as evidenced from the multiplicity of references that are required to make the rejection.

Further, none of the cited references, taken singly or in combination, disclose or suggest either winding a negative electrode into a wound body or pouring a non-aqueous electrolytic solution in a non-electrolyte battery in an inert gas atmosphere or a dry air atmosphere. There are multiple steps required to produce a battery. And Applicants inventively claim using an inert

gas or dry air atmosphere during the winding step and the pouring step. As described in Applicants' specification, as a result of pouring in the claimed atmosphere, it is possible to prevent the quality of the negative electrode from being degraded due to absorption of moisture in atmospheric air to the nonaqueous electrolytic solution, and hence to produce the negative electrode with a high quality. (Page 23, lines 1-7).

Therefore, Applicants claim specific steps that provide beneficial results for producing a non-aqueous electrolyte battery. As described in Applicants' specification, since the negative electrode is wound and the non-aqueous electrolytic solution is poured in an inert gas or dry air atmosphere, there is a beneficial result of preventing the negative electrode from degrading due to the absorption of moisture. This is a beneficial result that is not provided by typical methods, which do not use the claimed atmosphere specifically for winding a negative electrode or pouring a non-aqueous electrolytic solution.

Nowhere do the cited references disclose or suggest Applicants' claimed steps. Although *Watanabe et al.* generally discusses "assembling" a battery in a moisture-free or inert-gas atmosphere, nowhere does *Watanabe et al.* disclose or suggest Applicants' significant claimed steps of winding a negative electrode or pouring a non-aqueous electrolytic solution in an inert gas atmosphere or a dry air atmosphere. As described above, these are specific steps that are claimed by the Applicants that produce a previously unknown benefit. *Watanabe et al.* fails to disclose or suggest these specific claimed steps, and instead merely makes a general statement about "assembling" a battery in a moisture-free or inert-gas atmosphere. Applicants respectfully submit that *Watanabe et al.* general statement cannot be construed to read on Applicants' specific subject matter. And Applicants' respectfully submit that the Examiner has used improper hindsight to arrive at Applicants' claimed method steps based on the general statement used in *Watanabe et al.* Therefore, for at least this further reason, the cited references fail to disclose or suggest claim 6, as amended.

Therefore, Applicants respectfully submit that claim 6, as amended is allowable over the cited references.

Applicants respectfully submit the rejection has been overcome and request that it be withdrawn.

D.) Rejection of claims 2 and 3 under 35 U.S.C. §103(a) as being unpatentable over *Taniuchi et al.* in view of *Watanabe et al.*, in further view of *Iijima et al.*:

Claims 2 and 3 have been cancelled.

Applicants respectfully submit that the rejection has been overcome and request that it be withdrawn.

CONCLUSION

In view of the foregoing, it is submitted that claims 1, 4, and 6 are patentable. It is therefore submitted that the application is in condition for allowance. Notice to that effect is respectfully requested.

Respectfully submitted,

 (Reg. No. 45,034)
Christopher P. Rauch
SONNENSCHEIN, NATH & ROSENTHAL
P.O. Box #061080
Wacker Drive Station - Sears Tower
Chicago, IL 60606-1080
Telephone 312/876-2606
Customer #26263
Attorneys for Applicant(s)

VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Claims:

Please amend claims 1, 4, and 6 as follows:

1. (Twice Amended) A method of producing a negative electrode using a negative electrode black mix containing a negative electrode material composed of a mixture of a non-carbon material and a carbon material, comprising the [step] steps of:

pulverizing and classifying each of the non-carbon material and the carbon material in an inert gas atmosphere[,];

mixing the non-carbon material and the carbon material in an inert gas atmosphere; and applying the negative electrode black mix on a negative electrode collector and drying the negative electrode black mix in an inert gas atmosphere or a dry air atmosphere,

wherein a ratio of an average particle size R_M of the non-carbon material in the negative electrode material to an average particle size R_C of the carbon material in the negative electrode material is in a range of $R_M/R_C \leq 1$.

4. (Twice Amended) [A] The method of claim 1, further [producing a negative electrode using a negative electrode black mix containing a negative electrode material composed of a mixture of a non-carbon material and a carbon material,] comprising the step of:

hot-pressing the negative electrode black mix,

wherein the hot-pressing is performed in one of an inert gas atmosphere and a dry air atmosphere

[wherein a ratio of an average particle size R_M of the non-carbon material in the negative electrode material to an average particle size R_C of the carbon material in the negative electrode material is in a range of $R_M/R_C \leq 1$].

6. (Twice Amended) A method of producing a non-aqueous electrolyte battery, including a positive electrode containing a lithium composite oxide; a negative electrode containing a negative electrode material composed of a mixture of a non-carbon material in or from which lithium is doped or released and a carbon material, said negative electrode being disposed opposite to the positive electrode; and a non-aqueous electrolytic solution used as a non-aqueous electrolyte interposed between the positive electrode and the negative electrode, said method comprising the [step] steps of:

winding the negative electrode into a wound body in an inert gas atmosphere or a dry air atmosphere[,]; and

pouring the non-aqueous electrolytic solution in the non-aqueous electrolytic battery in an inert gas atmosphere or a dry air atmosphere,

wherein a ratio of an average particle size R_M of the non-carbon material in the negative electrode material to an average particle size R_C of the carbon material in the negative electrode material is in a range of $R_M/R_C \leq 1$.

Please cancel claims 2, 3, 5, and 7.

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited as First Class Mail in an envelope addressed to Asst. Commissioner for Patents, Washington, D.C. 20231 on March 25, 2003.

 (Reg. No. 45,034)
Christopher P. Rauch